

THE DIFFERENTIATION OF THE COCOONS OF *PELOPÆUS CEMENTARIUS* AND *CHALYBION CÆRULEUM* (HYMEN.).

BY PHIL RAU,
St. Louis, Missouri.

A large number of mud-daubers' nests had been gathered for the purpose of a study of the contents of their cells. The nests appeared to be all of the same kind. While opening them, however,

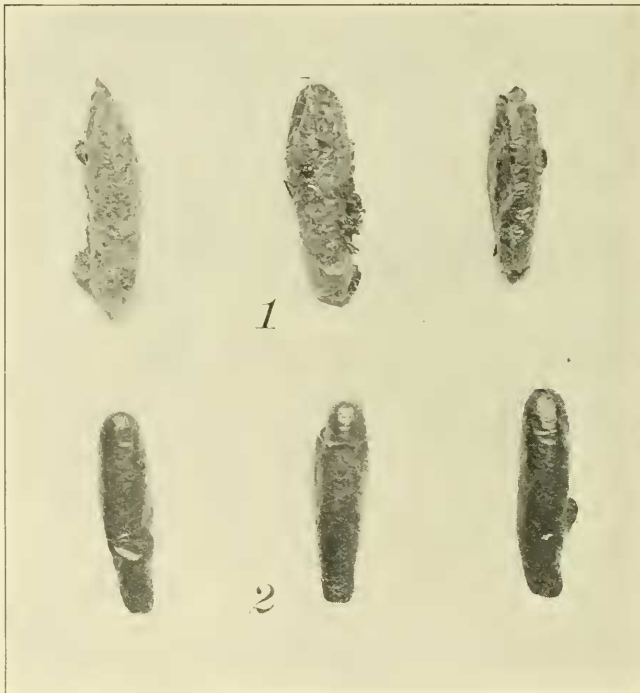


Fig. 1. 1, Cocoons of *Chalybion cæruleum*; 2, Cocoons of *Pelopæus cémentarius*.

we were for a time puzzled by a variation in the structure of the cocoon. Some of the cocoons were of a rich brown color and of papery consistency, with smooth surface as though glazed (Fig. 2); others were of a whitish color and of soft, webby texture

on the surface (Fig. 1.). Closer examination revealed that these were constructed exactly like the dark, firm ones, but with an additional covering. This sheath was of whitish silk, woven loosely into a webby, semi-transparent mesh; it covered the entire cocoon and fitted over it like a pillow-slip closed all around, and was entirely separate from it and could be slipped off without the slightest adherence. It seemed that it had been first constructed in the cell, and subsequently the firm, heavy shell was filled in quite independently.

The two forms of cocoons were so distinct, and the two types followed so accurately without deviation, that it could not long be considered merely the result of individual temperament. So the following year about three hundred of the cocoons were removed from the cells and sorted according to these two forms, and kept under conditions favorable to the development of the insect. Every one of the dark, smooth cocoons brought forth the yellow-legged Pelopæus (*Sceliphron*), while the cocoons with the additional webby covering gave forth without fail the steel-blue wasp, *Chalybion*.

In addition, a check experiment was carried on to avoid any error that might possibly arise due to artificial conditions. About one hundred mud nests, comprising several hundred cells, were individually placed in covered jelly glasses; when the insects emerged the species was noted and the remains of the cocoon examined, and in every case we found that the yellow-legged wasps had come from the plain cocoons and the metallic-blue ones from the cocoons with a caul.

A FLY PRESERVED IN PAPER.

I recently received from my friend, Mr. Germain Beaulieu of Ottawa, Canada, an interesting example of a fly preserved in a sheet of paper in which it had become evenly embedded during the process of manufacture. It was in the last leaf of Vol. VI of "Les Proverbes Dramatiques," printed in Paris by Lejay, rue St. Jacques au Grand Corneille, in 1773. The thinness of the paper makes it easy to study the venation which indicates the genus *Rhyphus*, and the color pattern, which is apparently still preserved, suggests *R. fenestralis*.

C. W. JOHNSON.